PTO/SB/30 (11-04)
Approved for use through 07/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

PETITION FEE

Under 37 CFR 1.17(f), (g) & (h)

TRANSMITTAL

(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	**10/781,685**
Filing Date	**February 20, 2004**
First Named Inventor	**Y. MIZUNO, et al**
Art Unit	
Examiner Name	
Attorney Docket Number	**501.43407X00**

Enclosed is a petition filed under 37 CFR §1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of $ 130.00 is enclosed.

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

Payment of Fees (small entity amounts are NOT available for the petition (fees)

☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:

☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments

Enclose a duplicative copy of this form for fee processing.

☐ Check in the amount of $ _____ is enclosed.

☒ Payment by credit card (From PTO-2038 or equivalent enclosed). Do not provide credit card information on this form.

Petition Fees under 37 CFR 1.17(f): **Fee $400** **Fee Code 1462**

For petitions filed under:
§ 1.53(e) - to accord a filing date.
§ 1.57(a) - to according a filing date.
§ 1.182 – for decision on a question not specifically provided for.
§ 1.183 – to suspend the rules.
§ 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
§ 1.741(b) – to accord a filing date to an application under §1.740 for extension of a patent term.

Petition Fees under 37 CFR 1.17(g): **Fee $200** **Fee code 1463**

For petitions filed under:
§1.12 - for access to an assignment record.
§1.14 - for access to an application.
§1.47 - for filing by other than all the inventors or a person not the inventor.
§1.59 - for expungement of information.
§1.103(a) - to suspend action in an application.
§1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
§1.295 - for review of refusal to publish a statutory invention registration.
§1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
§1.377 – for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
§1.550(c) – for patent owner requests for extension of time in ex parte reexamination proceedings.
§1.956 – for patent owner requests for extension of time in inter partes reexamination proceedings.
§ 5.12 – for expedited handling of a foreign filing license.
§ 5.15 – for changing the scope of a license.
§ 5.25 – for retroactive license.

Petition Fees under 37 CFR 1.17(h): **Fee $130** **Fee Code 1464**

For petitions filed under:
§1.19(g) – to request documents in a form other than that provided in this part.
§1.84 – for accepting color drawings or photographs.
§1.91 – for entry of a model or exhibit.
§1.102(d) – to make an application special.
§1.138(c) – to expressly abandon an application to avoid publication.
§1.313 – to withdraw an application from issue.
§1.314 – to defer issuance of a patent.

Name (Print/Type)	**Colin D. Barnitz**	*Registration No. (Attorney/Agent)*	**35,061**
Signature		*Date*	April 20, 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	**10/781,685**	Confirmation No. 3681
Applicant	:	MIZUNO, Y. et al.	
Filed	:	February 20, 2004	
Title	:	STORAGE SYSTEM AND METHOD FOR BACKUP	
TC/AU	:	2186	
Examiner	:	TBA	
Docket No.	:	501.43407X00	
Customer No.:		24956	

PETITION TO MAKE SPECIAL
UNDER 37 CFR §1.102(d) (MPEP §708.02(VIII))

April 20, 2005

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Applicants petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). In support of this Petition, pursuant to MPEP § 708.02(VIII), Applicants state the following.

(A) REQUIRED FEE

This Petition is accompanied by the fee set forth in 37 CFR § 1.117(h). A Credit Card Payment Form in the amount of $130 accompanies this Petition in satisfaction of the fee. The Commissioner is hereby authorized to charge any

additional payment due, or to credit any overpayment, to Deposit Account No. 50-1417.

(B) ALL CLAIMS ARE DIRECTED TO A SINGLE INVENTION

Claims 1-22 are pending in the application. All the pending claims of the application are directed to a single invention. If the Office determines that all claims in the application are not directed to a single invention, Applicant will make election without traverse as a prerequisite to the grant of special status.

The claimed invention, as embodied in independent claims 1, 9, 15, and 19 is generally directed to recovering data in a storage system, whereby a backup method is selected to enable recovery with a specified recovery object time. Under claim 1, the invention is a storage system comprising: a disk controller which has a CPU, a main memory, and an interface; and a disk device which has original volumes for backup and a storage pool for backup data, wherein: the main memory incorporates: a differential management program which checks whether the original volumes for backup are updated or not; a pool management program which allocates a disk area for storage of backup data to the storage pool for backup data; a performance management program which manages the performance of each volume of the disk device; and a backup control program which issues an instruction to the differential management program, the pool management program, and the performance management program for total backup control; and the backup control program selects a backup method by which recovery within a user-specified recovery object

time is possible, according to a restore performance calculated by the performance management program and the total size of changed blocks after backup acquisition as counted by the differential management program.

Additionally, under independent claim 9, the invention is a storage system comprising: a disk controller which has a CPU, a main memory, and an interface; and a disk device which has original volumes for backup, wherein: the storage system is connected through a data transfer line with a backup storage system which has a volume for storage of backup as a backup destination; the main memory incorporates: a differential management program which checks whether the original volumes for backup are updated or not; a performance management program which manages the performance of each volume of the disk device; a data transfer program which transfers data between the storage system and the backup storage system; a backup destination management program which manages the backup volume for backup data; and a backup control program which issues an instruction to the differential management program, the performance management program, the data transfer program, and the backup destination management program for total backup control; and the backup control program selects a backup method by which recovery within a user-specified recovery object time is possible, according to a restore performance calculated by the performance management program and the total size of changed blocks after backup acquisition as counted by the differential management program.

Furthermore, under independent claim 15, the invention is a storage system comprising: a disk controller which has a CPU, a main memory, and an interface; and a disk device which has original volumes for backup; wherein: the storage system is connected through a data transfer line with a backup storage system which has a storage volume for backup data as a backup destination; and the storage system is connected with a backup server which has backup software to manage backup data on a file-by-file basis and a backup setup program; the main memory incorporates: a differential management program which checks whether the original volumes for backup are updated or not; a performance management program which manages the performance of each volume of the disk device; a data transfer program which transfers data between the storage system and the backup storage system; a backup destination management program which manages the storage volume for backup data; and a backup control program which issues an instruction to the differential management program, the performance management program, the data transfer program, and the backup destination management program for total backup control; and the backup control program selects a backup method by which it is possible to recover data within a recovery object time specified on a setup screen under the backup setup program of the backup server, according to a restore performance calculated by the performance management program and the total size of changed blocks after backup acquisition as counted by the differential management program.

Finally, under independent claim 19, the invention is a backup method for a storage system which comprises a disk controller which has a CPU, a main memory, and an interface; and a disk device which has original volumes for backup and a storage pool for backup data, wherein the main memory incorporates: a differential management program which checks whether the original volumes for backup are updated or not; a pool management program which allocates a disk area for storage of backup data to the storage pool for backup data; a performance management program which manages the performance of each volume of the disk device; and a backup control program which issues an instruction to the differential management program, the pool management program, and the performance management program for total backup control, the method comprising the steps of: the differential management program counting the total size of changed blocks after a previous backup acquisition; the performance management program calculating estimated restore time for backup by reading a write performance and a read performance and taking the lower performance as an estimated restore performance and dividing the total size of changed blocks by the estimated restore performance; deciding whether the calculated estimated restore time is within a user-specified recovery object time or not; and selecting a backup method by which recovery within the object time is possible.

(C) PRE-EXAMINATION SEARCH

A careful and thorough pre-examination search has been conducted, directed to the invention as claimed. The pre-examination search was conducted in the following **US Manual of Classification** areas:

Class	Subclass
707	102, 200, 201, 202, 203, 204
709	203, 225, 226
711	111, 112, 113, 114, 136,154,160, 161, 162
714	5, 6, 7

Additionally, a keyword search was conducted on the USPTO's EAST database, including US patents, published US patent applications, and the European and Japanese patent abstract databases.

(D) DOCUMENTS DEVELOPED BY THE PRE-EXAMINATION SEARCH AND OTHER ART OF RECORD IN THE CASE

The documents located by the pre-examination search are listed below. These documents were made of record in the present application by the Information Disclosure Statement filed March 30, 2005 (copy attached).

Document No.	Inventor
US 5625820	Hermsmeier et al.
US 5758359	Saxon
US 6549973	Kibashi et al.
US 20030084372	Mock et al.
US 20040030852	Coombs et al.
US 20040078628	Akamatu et al.
US 20040148485	Suzuki
US 20040260965	Kelman
US 20050028025	Zalewski et al.
US 20050055444	Venkatasubramanian

Additionally, the following documents were made of record in the present application by the Information Disclosure Statement filed February 20, 2004 (copy attached).

Document No.	Inventor
US 5522037	Kitagawa et al.
JP 07-084728	Kitagawa et al.

Because all of the above-listed documents are already of record in the present application, in accordance with MPEP § 708.02(VIII)(D), additional copies of these documents have not been submitted with this Petition.

(E) DETAILED DISCUSSION OF THE REFERENCES

Those of the above-listed documents deemed to be most closely-related to the present matter encompassed by the claims are discussed below, pointing out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed present matter is patentable over the teachings of these documents.

1. Discussion of the Invention

The present invention teaches a storage system and a backup method for the storage system. Under the invention set forth in claims 1, 9, 15, and 19, a backup control program selects a backup method by which recovery within a specified recovery object time is possible. The selection of a backup method is made based upon a calculated/estimated restore performance and the total size of changed

blocks after a previous backup acquisition. The restore performance is calculated/estimated by a performance management program, while the total size of changed blocks is counted by a differential management program. Thus, as set forth with specificity in claim 19, the calculated estimated restore time is the total size of changed blocks divided by the estimated restore performance. The backup control program can use this calculated restore time for selecting a backup method that will allow recovery within a user-specified object time.

Accordingly, as set forth in independent claims 1, 9, and 15 the storage system of the invention includes a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program.

Further, as set forth in claim 19, a backup method for a storage system includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible. The prior art does not teach or suggest such a storage system or backup method for a storage system.

2. Discussion of the References Believed to be Most-Closely Related

The patent to Hermsmeier, US 5625820, shows system control over the logging of objects in order to meet user-specified recovery requirements. The user chooses a length of time desired for recovering the database, and the system dynamically manages the logging of objects to meet this time. The estimated amount of time to rebuild each object is used to determine whether an object is to be logged. (See, e.g., column 2, lines 6-36 and column 4, line 35, through column 6, line 15.) In Hermsmeier, however, a determination is made as to how often objects should be logged, rather than selection of a backup method, as in the present invention. Consequently, Hermsmeier does not teach the present invention since determination of logging frequency is not the same as the selection of a backup method. Further, Hermsmeier does not base any decisions upon the total size of changed blocks after backup acquisition, as in the present invention, but instead, uses the estimated amount of time to rebuild each object. Thus, Hermsmeier differs from the present invention, since the present invention determines the total size of changed blocks after a backup acquisition, and selects a backup method will enable a recovery time according to the size of changed blocks and a determined restore performance. Accordingly, Hermsmeier does not disclose a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Hermsmeier teach a backup method for a storage system that

includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

The patent to Saxon, US 5758359, discloses a method and apparatus for performing computer system backups according to a backup policy made sensitive to adjustable selection criteria. The backup system employs a backup policy to control the backup procedures so that the backups are performed at specific times and at specific backup levels, but the backups are subject to user-defined selection criteria. The selection criteria includes a maximum size threshold, selected by a user, which is the amount of data that can be backed up in an allotted backup time. (See, e.g., Abstract, column 2, line 9, through column 3, line 32, and column 4, lines 16-38.) Thus, Saxon is concerned with a meeting a desired time limit for backup, rather than a specified object recovery time, as in the present invention, and Saxon does not appear to consider recovery time at all. Accordingly, Saxon does not disclose a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Saxon teach a backup method for a

storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

The published patent application to Mock, US 20030084372, discloses a protection utility that determines the time for rebuilding compiled data in a computer system having dynamically configurable partitions, and which selectively stores data in a form not requiring rebuild to meet a pre-specified recovery time limit. If the partition configuration changes, the protection strategy is migrated to adapt to the new configuration. The user specifies a maximum recovery time for the database indexes, and the protection utility automatically estimates a rebuild time for each database index object, i.e., a time required to rebuild the index following a failure. In general, indexes having a rebuild time in excess of an internal rebuild time threshold are logged to reduce the length of recovery time. (See, e.g., Abstract, paragraphs 15-19 and 60-63.) Thus, similar to Hermsmeier, discussed above, and unlike the present invention, Mock does not disclose selecting a backup method, but instead is directed to determining the frequency of logging an index, and determining which index to log. Accordingly, Mock does not disclose a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance

management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Mock teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19. .

The published patent application to Coombs, US 20040030852, discloses a method and system for performing different methods of data backups on a computer system. The backups are performed according to a plan which balances the desire to maintain the availability of data backups with the need for storage space for additional backups. The method preferably includes the step of paring at least one of a full and incremental backup at the backup storage device automatically in accordance with a plan to manage full and incremental backups. In order to lessen user burden, the software for coordinating the backup process may be preconfigured for certain default parameters indicating, for example, which system files and user files are to be backed up, and the respective periods for the one or more types of full or incremental backups. (See, e.g., Abstract and paragraphs 10-14, 17, and 36.) Thus, unlike the present invention, Coombs does not disclose a backup control program that selects a backup method by which recovery within a user-specified recovery object time is possible. Instead, Coombs is concerned with managing

storage space for backups, and Coombs is not concerned with recovery time. Accordingly, Coombs does not disclose a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Coombs teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

The published patent application to Suzuki, US 20040148485, discloses a method for managing storage devices that executes an operation procedure of storage devices based on operating rules or policies for the storage devices. The results of execution are fed back to automatically change an operating scenario or to automatically make a partial change to the operating scenario according to a change of the environment. The system can select a backup method based on different times for a backup copy to be completed. (See, e.g., Abstract, paragraphs 7 and 34, and Figures 3-5.) Thus, unlike the present invention, Suzuki does not disclose a backup control program that selects a backup method by which recovery within a user-specified recovery object time is possible. Rather, Suzuki is concerned with the

amount of time to create the backup. Accordingly, Suzuki does not disclose a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Suzuki teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

The published patent application to Zalewski, US 20050028025, discloses a method and apparatus for the storage and recovery of data by creating a dynamic storage pool in an open, heterogeneous computing environment. The method includes determining an amount of available storage, identifying the storage capabilities of the available storage, and selecting a backup method for the backup of application server data based on the storage capabilities. Zalewski mentions that the length of time data is inaccessible during recovery is a factor involved in determining which template should be used for recovery, but does not disclose how this might be accomplished. (See, e.g., Abstract and paragraphs 5 and 22.) Accordingly, Zalewski does not disclose a backup control program that selects a

backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Zalewski teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

The patent to Kitagawa, US 5522037, is equivalent to JP 07-084728, and teaches a backup control apparatus and method of data processing. As also discussed in the specification of the present application, in Kitagawa, full backup and incremental backup are combined to reduce recovery processing time. When the amount of updated data is equal to or larger than a reference value, a whole backup is executed, but when it is smaller than the referenced value, a differential backup is executed. (See, e.g., Abstract, column 3, lines 29-63, and column 10, line 41, through column 11, line 29.) Thus, Kitagawa bases the decision of whether to use full backup or incremental backup on the amount of updated data that is to be backed up, and not on a specified recovery time. Kitagawa does not select the backup method based on a specified recovery object time, as in the present invention. Accordingly, Kitagawa does not disclose a backup control program that

selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15; and nor does Kitagawa teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19.

3. Remaining References

The remaining references of record in the application are deemed to not be among those most closely related to the claimed invention, and are of general interest to the disclosure of the invention, or were provided as background information, and also does not show or suggest the present invention, as set forth in claims 1, 9, 15, and 19.

CONCLUSION

Thus, from the foregoing, it is apparent that none of the above-discussed documents teach the storage system of the invention, including a backup control program that selects a backup method by which recovery within a specified recovery object time is possible, according to a restore performance calculated by a

performance management program and a total size of changed blocks after backup acquisition as counted by a differential management program, as set forth in claims 1, 9, and 15. Also, none of the above-listed documents teach a backup method for a storage system that includes: counting the total size of changed blocks after a previous backup acquisition; calculating estimated restore time; deciding whether the calculated estimated restore time is within a user-specified recovery object time; and selecting a backup method by which recovery within the object time is possible, as set forth in claim 19. Accordingly, independent claims 1, 9, 15, and 19 are patentable over the above-listed documents.

The Applicants submit that the foregoing discussion demonstrates the patentability of the independent claims over the closest-known prior art, taken either singly, or in combination. The remaining claims depend from the independent claims, claim additional features of the invention, and are patentable at least because they depend from allowable base claims. Accordingly, the requirements of 37 CFR §1.102(d) having been satisfied, the Applicants request that this Petition to Make Special be granted and that the application be examined according to prescribed procedures set forth in MPEP §708.02 (VIII).

The Applicants prepared this Petition in order to satisfy the requirements of 37 C.F.R. §1.102(d) and MPEP §708.02 (VIII). The pre-examination search required by these sections was "directed to the invention as claimed in the application for which special status is requested." MPEP §708.02 (VIII). The search performed in support of this Petition is believed to be in full compliance with the requirements of MPEP

§708.02 (VIII); however, Applicants make no representation that the search covered every conceivable search area that might contain relevant prior art. It is always possible that prior art of greater relevance to the claims may exist. The Applicants urge the Examiner to conduct his or her own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited above and any other prior art that may be located by the Examiner's independent search.

Further, while the Applicants have identified and discussed certain portions of each cited reference in order to satisfy the requirement for a "detailed discussion of the references, which discussion points out, with the particularly required by 37 C.F.R. §1.111(b) and (c), how the claimed present matter is patentable over the references" (MPEP §708.02(VIII)), the Examiner should not limit review of these documents to the identified portions, but rather is urged to review and consider the entirety of each reference.

Respectfully submitted,

Colin D. Barnitz
Registration No. 35,061
Attorney for Applicants

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 Diagonal Rd., Suite 370
Alexandria, Virginia 22314
(703) 684-1120

501.43407X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Y. MIZUNO et al

Serial No.: Not Yet Assigned

Filed: On Even Date Herewith

For: STORAGE SYSTEM AND METHOD FOR BACKUP

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.97 & 1.98

February 20, 2004

MS: Patent Applications
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In the matter of the above-identified application, applicants are submitting herewith a copy of the document listed in the attached form equivalent to Form PTO-1449 for the Examiner's consideration.

This Information Disclosure Statement is being submitted with the new application.

To the extent the document listed on the attached form equivalent to Form PTO-1449 is not in the English language, the requirement of 37 CFR 1.98(a)(3) for a concise explanation of the relevance is satisfied by the discussion of this document in the Specification, for example, on page 3.

It is respectfully requested that this Information Disclosure Statement be considered by the Examiner.

Please charge any shortage in the fees due in connection with the filing of this

paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus Deposit Account No. 01-2135 (Case: 501.43407X00), and please credit any excess fees to such deposit account.

Respectfully submitted,
ANTONELLI, TERRY, STOUT & KRAUS LLP

Colin D Brundt
Reg no 35061

FOR: Carl I. Brundidge
Registration No. 29,621

CIB/dks
(703) 312-6600

Attachments

PTO/SB/08A (10-01)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	
Filing Date	On even date herewith
First Named Inventor	MIZUNO, Yoichi
Art Unit	
Examiner Name	
Attorney Docket Number	501.43407X00

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5,522,037	05-28-1996	Kitagawa et al	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]–Number[4]–Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		JP 7-084728	03-31-1995			AB

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard St.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/781,685	Confirmation No. 3681
Applicant	:	Y. MIZUNO et al	
Filed	:	February 20, 2004	
Title	:	STORAGE SYSTEM AND METHOD FOR BACKUP	
TC/AU	:	TBD	
Examiner	:	TBD	
Docket No.	:	501.43407x00	
Customer No.:		24956	

Commissioner for Patents
Mail Stop DD
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT (IDS)
UNDER § 1.97 AND § 1.98

Sir:

1. This IDS should be considered:

(a) when filed within three months of the filing date of the present application, or within three months of the filing date of the National Stage as set forth in § 1.491 in an international application, or before the mailing date of a first Office Action on the merits, whichever occurs last;

(b) when filed before the mailing date of either a Final Rejection under § 1.113 or a Notice of Allowance under § 1.311, whichever occurs first and when 1(a) does not apply. For this purpose, there is included herein either a certification in section 4 below (included when indicated by a marked box), or a fee of $180.00 (a Credit Card Payment Form in the amount of $180.00 is enclosed, or if not see section 5 below);

(c) when filed prior to the payment of the Issue Fee, when 1(a)-(b) do not apply, and when a certification is included in section 4 below (included when indicated by a marked box); then the Applicant(s) hereby petition(s) and request(s) consideration of this IDS, and provided herewith is a fee of $180.00 (a Credit Card

Payment Form in the amount of $180.00 to cover the petition fee, or if not see section 5 below).

2. When 1(a)-(c) do not apply, then it is requested that this IDS be placed in the file.

3. Listing of the information submitted is on the attached Form PTO-1449, which forms a part of this IDS. A copy of each listed document is enclosed when needed.

4. If a fee or additional fee is required, the Commissioner is hereby authorized to charge any fee or additional fee that may be required and credit any excess to Deposit Account No. 50-1417.

5. No explanation of relevancy is being provided for the following document(s) because each is either in the English language, discussed in the present Specification, or its relevance is as stated in a communication from a foreign patent office in a counterpart foreign application.

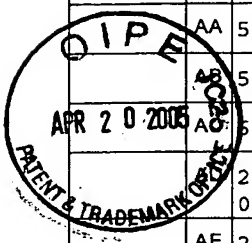
6. If the PTO determines that part(s) of the required content is inadvertently omitted, then it is requested that the Applicant(s) be given additional time and specific identification of such omission(s) to enable full compliance.

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

By _____
Colin D. Barnitz
Reg. No. 35,061
(703) 684-1120

FORM PTO-1449 (REV. 7-80)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 501.43407X00	SERIAL NO. 10/781,685
LIST OF DOCUMENTS CITED BY APPLICANT *(Use several sheets if necessary)*		APPLICANT Y. MIZUNO et al	
		FILING DATE February 20, 2004	GROUP



U.S. PATENT DOCUMENTS

* EXAMINER INITIAL		DOCUMENT	DATE	NAME	CLASS	SUBCLASS	FILING DATE *(If Appropriate)*
	AA	5,625,820	04/29/97	Hermsmeier et al			
	AB	5,758,359	05/26/98	Saxon			
	AC	6,549,973	04/15/03	Kibashi et al			
		2003/ 0084372	05/01/03	Mock et al			
	AE	2004/ 0030852	02/12/04	Coombs et al			
	AF	2004/ 0078628	04/22/04	Akamatu et al			
	AG	2004/ 0148485	07/29/04	Suzuki			
	AH	2004/ 0260965	12/23/04	Kelman			
	AI	2005/ 0028025	02/03/05	Zalewski et al			
	AJ	2005/ 0055444	03/10/05	Venkatasubramanian			
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
	AL						☐	☐
	AM						☐	☐
	AN						☐	☐
	AO						☐	☐
	AP						☐	☐

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, etc.)*

	AR		
	AS		
	AT		

EXAMINER	DATE CONSIDERED